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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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11/19/2003

Robert Miles Neil

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EXAMINER

BOATENG, ALEXIS ASIEDUA

ART UNIT

PAPER NUMBER

2838

DATE MAILED: 04/21/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/717,950

Applicant(s)

NEIL ET AL.

Examiner

Alexis Boateng

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED. (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on 25 January 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☐ Claim(s) \_\_\_\_\_ is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 January 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 1/13/06.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 6, 7, 11, 15 and 17 are rejected under 35 U.S.C. 102(b) as being anticipated by Yagi (U.S. 6,188,202).

**Regarding claim 1**, Yagi discloses a battery charge system for a vehicle, including (Figure 1):

a controller (30) that detects a charging session where a battery (12) in the vehicle is charged by

an external battery charger(14), the controller upon detecting the charging session activating a fan (16) (column 4 line 36 through 40: When the charging operation of the battery 12 is started, the ordinary charge mode or the under charge mode is selected according to the battery temperature Tb1 at the charge start time which is detected by the battery temperature detector 20. Column 3 lines 14 through 23: the ECU receives battery temperatures Tb1 and Tb2 from the battery temperature detector 20, and a battery voltage from the battery voltage detector. In response to those signals, the ECU 30 controls the charger 14, the cooling fan, 16 and the heater.)

located in the vehicle for cooling the battery during the charging session (column 2 lines 60 through 62: A cooling fan 16 adapted to cool the battery 12 , and a heater adapted to heat the battery 12 are provided near the battery)

**Regarding claim 6,** Yagi a battery monitor that monitors battery parametric information, the battery monitor or the controller activating the fan when the charging session is detected and the battery monitor controlling the charging session with the battery charger according to a reduced battery temperature provided by the fan. (Column 3 lines 20 through 22: that in response to those signals, the ECU 30 controls the charger 14, the cooling fan 16, and the heater 18. Column 2 line 14 through 19: that the ECU 30 receives battery temperatures Tb1 and Tb2 from the battery temperature detector 20, and a battery voltage Vb from the battery voltage detector and receives a mode signal Mo (a high-level signal or a low level signal) from a charge mode selecting switch 32 which is adapted to manually select a charging mode)

**Regarding claim 7,** Yagi discloses wherein the controller monitors and stores vehicle operational data and then downloads the stored data to the battery monitor, the battery monitor then sending the data through a cable coupled between the battery monitor and the battery charger to a computer coupled to the battery charger. (Figure 1 items 20, 22: the battery temperature and voltage detector that connects to the ECU. See column 3 lines 7-14: The ECU is constituted by a CPU (central processing unit); a ROM (read only memory) which is a memory in which a system program or an application program for detection of a remaining capacity are stored, a RAM (Random Access Memory) which is a memory and a microcomputer including a timer, and input and output interfaces

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such as an A/D converter and a D/A converter. Figure 1 items 20, 22, 30, and 14: battery monitors, coupled to battery charger and the CPU.)

**Regarding claims 11, and 15 through 17**, claims 11 and 15 through 17 are method steps, which correspond to the apparatus of claim 1, and 6 through 7, respectively. Under the principles of inherency, if a prior art device, in its normal and usual operation, would necessarily perform the method claimed, then the method claimed will be considered to be anticipated by the prior art device.

When the prior art device is the same as a device described in the specification for carrying out the claimed method, it can be assumed the device will inherently perform the claimed process. In re King, 801 F.2d 1324, 231 USPQ 136 (Fed. Cir 1986)

3. Claims 19 are rejected under 35 U.S.C. 102(b) as being anticipated by Kadouchi (U.S. 5,652,500)

**Regarding claim 19**, Kadouchi discloses in figure 2 and 14 a battery charging system for a vehicle, comprising:

a battery (1) located in the vehicle for powering an electric motor used for locomotion in the vehicle; (see column 1 lines 8 through 14)

a fan (12, 13. See Figure 14) permanently installed in the vehicle and directed toward the battery (column 1 line 62 through: a forced cooling apparatus for a battery pack 1 which is to be installed in an electric vehicle.

a battery charger (3 See figure 2); and

a controller (2) automatically activating the fan when the battery charger initiates charging of the battery.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 2 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yagi (U.S. 6,188,202) in view of Kwan (U.S. 5,844,398).

**Regarding claim 2,** Yagi discloses the claimed invention as defined in claim 1, however does not expressly disclose a sensor that identifies a start of the charging session either when the external battery charger connects to the battery or when the battery charger starts charging the battery. Kwan discloses in column 5 lines 10 through 13 that as soon as the microcomputer detects the signal showing that a battery is connected in the system, it starts controlling the charging process by detecting the charging current. At the time of invention, it would have been obvious to a person of ordinary skill in the art to implement a sensor for a battery charging system that detects the when the battery is connected to the charger so that the charging system automatically begins charging at the detection of a battery.

**Regarding claim 12,** claim 12 is a method step, which correspond to the apparatus of claim 11. Under the principles of inherency, if a prior art device, in its normal and usual operation, would necessarily perform the method claimed, then the method claimed will be considered to be anticipated by the prior art

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device. When the prior art device is the same as a device described in the specification for carrying out the claimed method, it can be assumed the device will inherently perform the claimed process. In re King, 801 F.2d 1324, 231 USPQ 136 (Fed. Cir 1986)

6. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yagi (U.S. 6,188,202) in view of Perez (U.S. 6,449,870).

**Regarding claim 3**, Yagi discloses the claimed invention as defined in claim 1, however does not expressly disclose wherein including an interlock switch that connects the battery charger to the fan or connects the battery to the fan during the charging session. Perez et al. discloses in figure 5A switch 51 and 52 for connecting the battery and charger to a fan. At the time of invention, it would have been obvious to a person of ordinary skill in the art to modify the Yagi battery charger system and add a switch as taught by Perez et al. so that the fan can be connected and disconnected to maintain safety in the charger and device.

7. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yagi (U.S. 6,188,202) in view of Perez (U.S. 6,449,870) as applied to claim 3 above, and further in view of Moore (U.S. 6,455,186).

**Regarding claim 4**, Yagi discloses the invention as defined in claim 1, however does not expressly disclose wherein including an interlock switch that connects the battery to the fan during the charging session. Perez et al. discloses in figure 5A switch 51 and 52 for connecting the battery to a fan. At the time of invention, it would have been obvious to a person of ordinary skill in the art to modify the Yagi battery charger system and add a switch as taught by Perez et al. so that the fan can be connected and disconnected to maintain safety in the charger and

device. Neither Yagi nor Perez disclose the remainder of the claim. Moore discloses in figure 8 and in column 6 line 57 column 7 line 5 wherein the fan is connected to the battery charger via contacts from the case. At the time of invention, it would have been obvious to a person of ordinary skill in the art to modify the Yagi and the Perez system with the Moore system so that the fan can be operated while the battery is being charged.

8. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yagi (U.S. 6,188,202) in view of Kadouchi (U.S. 5,652,500).

**Regarding claim 13,** Yagi discloses the invention as defined in claim 11, however does not expressly disclose automatically directing energy from the battery charger to the fan and disconnecting other electrical equipment in the vehicle from the battery when the charging session is detected. Kadouchi discloses in column 4 lines 57 through 61 that under a normal running state, the switch 5 is closed so that a current is supplied to the load. Kadouchi further discloses that during a charge the switch 5 is opened to isolate the load from the battery pack, and a DC charge voltage applied to the battery pack by the charge apparatus 3. At the time of invention, it would have been obvious to a person of ordinary skill in the art to direct energy from the battery charger to the fan and disconnecting other electrical equipment in the vehicle from the battery when the charging session is detected so that charging time is shortened and charging cost is decreased.

9. Claim 5 rejected under 35 U.S.C. 103(a) as being unpatentable over Yagi (U.S. 6,188,202) in view of Perez (U.S. 6,449,870) in further view of Traveis et al. (U.S. 6,329,727).



**Regarding claim 5,** Neither Yagi nor Perez disclose a filter. Traveis et al.

discloses in figure 1, a filter 18 for protecting the fan 27. At the time of invention, it would have been obvious to a person of ordinary skill in the art to modify the device of Yagi and Perez and add a filter as taught by Traveis in order to protect the fan against charge surges.

10. Claims 8, 9, 10 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yagi (U.S. 6,188,202) in view of Langston (U.S. 6,087, 805).

**Regarding claim 8,** Yagi discloses the claimed invention as defined in claim 1, however does not expressly disclose wherein the controller predicts an amount of remaining vehicle operating time according to both battery charge information and vehicle operating parameters. Langston discloses in column 8 lines 50 through 57 that in figure 18, there is shown a module for reading out the status of the battery from the microprocessor 30 and the IR transmitter 34 (Fig 2) having an infrared sensor 430, a series to parallel encoder 432 connected to the sensor 430 for receiving signals and transmitting binary code to the storage register and driver 434 which drives the display units 436 to display a string of power values as determined by the module 432. At the time of invention, it would have been obvious to a person of ordinary skill in the art to implement a controller that predicts the amount of remaining vehicle operating time, according to battery charge information so that the user is properly notified of when the vehicle will shutdown and when to recharge or change the battery.

**Regarding claim 9,** Yagi discloses the claimed invention as defined in claim 8, however does not expressly disclose wherein the controller monitors and stores

a profile of vehicle operation and adjusts the predicted amount of remaining vehicle operating time according to the vehicle operation profile. Langston discloses in column 2 lines 25 through 34 that in a preferred embodiment, the charging history and other data may be monitored conveniently with a portable monitor, which either plugs into battery charger or, preferably, receives a transmitted radiant energy coded signal with the data. Langston further discloses that a microprocessor aids in the operation of the battery charger and may also aid in the control of the vehicle. Langston continues to state that it may also provide signals such as trouble signals or the like based on information received by the microprocessor and in some instances, stored in the microprocessor memory. At the time of invention, it would have been obvious to a person of ordinary skill in the art to implement controllers that monitor and store a profile of vehicle operation and adjusts the predicted amount of remaining operating time for maintenance operations such as determining when the battery should be replaced and controlling watering or changing the electrolyte as recited in column 2 lines 23 through 25.

**Regarding claim 10,** Yagi discloses the claimed invention as defined in claim 9, however does not expressly disclose wherein the controller predicts a duration of an upcoming vehicle operating session, predicts whether or not the battery has enough charge to operate the vehicle for the predicted duration, and displays results of the predictions. Langston discloses in column 2 lines 7 through 9 that the battery charger control circuit records ampere hours removed from the battery and ampere hours of energy applied to the battery to maintain a long-term record. Langston further discloses in column 2 lines 15 through 20 that the

measured energy removed and supplied may determine the termination point for the charge cycle within a predetermined range of energy being removed during a charging cycle, but on the other hand, a circuit which determines the cutoff time based on the rate of change of charging current may be used. At the time of invention, it would have been obvious to a person of ordinary skill in the art to construct the controller so that it predicts whether or not the battery has enough charge to operate the vehicle for the predicted duration, and display the results of the prediction so that it can provide an appropriate charging current rate or pattern to maintain the life of the battery and to control power applied to the battery during operation of the vehicle.

**Regarding claim 18**, claim 18 is essentially a duplicate of claims 8, 9, and 10.

Applicant is advised that should claims 8, 9 and 10 be found allowable, claim 18 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof.

When two claims in an application are duplicates or else are so close in content that they both cover the same thing despite a slight difference in wording, it is proper after allowing one claim to object the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03 (k).

11. Claim 14 rejected under 35 U.S.C. 103(a) as being unpatentable over Yagi (U.S. 6,188,202) in view of Kadouchi (U.S. 5,652,500) in view of Langston (U.S. 6,087,805).

**Regarding claim 14**, Yagi and Kadouchi disclose the claimed invention as defined in claim 13, however does not expressly disclose connecting the battery charger to the fan during the charging session, disconnecting the battery charger from the fan at the completion of the charging session, and connecting the battery to the fan at the completion of the charging session to remove residual

heat from the battery after the battery charger has been shut-off. Kadouchi discloses in column 4 lines 57 through 61 that under a normal running state, the switch 5 is closed so that a current is supplied to the load. Kadouchi further discloses that during a charge the switch 5 is opened to isolate the load from the battery pack, and a DC charge voltage applied to the battery pack by the charge apparatus 3. Kadouchi further discloses in column 1 line 67 through column 2 line 5 that air introduced into the container 11 by an intake fan 12 is exhausted to the outside of the container 11 by an exhaust fan 13 in such a manner that air passes through gaps between cells and the modules inside the battery pack. In this way, the battery pack 1 is forcedly cooled. At the time of invention, it would have been obvious to a person of ordinary skill in the art to connect the battery charger to the fan during the charging session, and disconnect the battery charger from the fan at the completion of the charging session and connect the battery to the fan to remove residual heat so that the battery continues to be cooled off after it has been fully charged so that its life is preserved.

12. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kadouchi (U.S. 5,652,500) in view of Watanbe (U.S. 5,982,152).

**Regarding claim 20**, Kadouchi discloses the invention defined in 19 including switching circuitry (5) in the vehicle that automatically disconnects power from the battery charger from other vehicle electrical equipment while the battery charger charges the battery (See column 4 line 57 through 61). Kadouchi does not disclose wherein the fan is powered. Watanbe discloses in column 3 lines 26 – 35 and in figure 1 wherein the fan is operated by the ECU of the system wherein power is connected from the battery charger to the fan. At the time of

invention, it would have been obvious to a person of ordinary skill in the art to modify the Kadouchi system with the Watanbe system so that the battery is cooled by a controlled cooling system the prevents overheating and overcooling.

### ***Response to Arguments***

1. Applicant's arguments filed 1/25/06 have been fully considered but they are not persuasive. **Regarding claims 1, 11, 13, 14, and 19**, the applicant argues that Yagi does not automatically start the fan when the battery begins charging and does not continue to blow on the battery after the charging session is completed. Yagi discloses in column 6 line 58 – column 7 line 6 wherein the battery is in an ordinary charge mode and then the fan is driven at low speed. Yagi further discloses wherein the battery charging session is stopped and the fan is then driven at a high speed, thus the fan continues when the charging has stopped.

2. **Regarding claim 3**, the applicant argues that Perez does not disclose connecting a battery charger to a fan circuit. Perez discloses in figure 5A wherein the fan is connected to the battery charger. However, even assuming *arguendo* that the Perez system does not have connect the fan to the battery charger, the claim explicitly states the word “or” which provides the fact that it identifies one or the other part of the claim.

3. **Regarding claim 5**, the applicant argues that Traveis does not disclose a functioning of the filter to filter out large charge surges. Traveis discloses in column 2 lines 25 – 34, wherein the supply voltage is substantially in excess of the maximum operating voltage, which can be a high voltage relative to the system. Traveis further

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discloses in column 2 lines 52 – 63 wherein the  $V_{in}$  is a peak voltage converted by the LC filter.

4. In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, **regarding claims 8 – 10, and 18**, the vehicles identified in the Langston system are battery operated and when the battery dies, the vehicle also dies. Thus when the battery life is monitored and provided, it provides information on the vehicle's life as well. See arguments above for motivation.

5. Applicant's arguments, see page 11 of 13, filed 1/25/06 with respect to the rejection(s) of claim(s) **4** and **20** wherein Kadouchi does not teach what is powering the fans, have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Kadouchi in view of Watanbe, see arguments above for claims 4 and 20.

### ***Conclusion***

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within

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TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alexis Boateng whose telephone number is (571) 272-5979. The examiner can normally be reached on 8:30 am - 6:00 pm, Monday - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Karl Easthom can be reached on (571) 272-2084. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

AB



Adolf Dereke Berhane  
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